



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,236	10/28/2003	Jennifer L. Elster	L187-1	4963

Joy L. Bryant
P.O. Box 590
Lightfoot, VA 23090

EXAMINER

KANG, JULIANA K

ART UNIT PAPER NUMBER

2874

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,236

Applicant(s)

ELSTER ET AL.

Examiner

Juliana K. Kang

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42, 51 and 52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42, 51 and 52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/26/04</u> . | 6) <input type="checkbox"/> Other: _____ |

1. Applicant's communication filed on February 9, 2005 has been carefully studied by the Examiner. The arguments advanced therein are persuasive and the new ground(s) of rejections are applied to the pending claims presented in this Office action. Accordingly, this action is not made final.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 4, 37 and 39, are rejected under 35 U.S.C. 102(b) as being anticipated by Crofts et al (U.S. Patent 6,215,943 B1).

Regarding claim 1, Crofts et al disclose an apparatus comprising: an optical fiber with a grating (see column 4 line 40 and 44, Bragg grating or long period grating), a tube (20, optical fiber channel holder) and an aperture (50, sample channel & port). The tube is a monolithic structure (see column 3 line 55) and a cylindrical shape (see Fig. 4).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3-42, 51 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pauluth et al (U.S. Patent 6,137,576, previously applied upon) and further in view of Murphy et al (U.S. Patent 5,864,641, previously cited by applicant).

Regarding claims 1, 8 and 36, Pauluth et al disclose the claimed invention (see Fig. 1 and Fig. 7) including a reflection grating coupler equipped in a flow cell (29) with an inlet (30) and an outlet (31). However, Pauluth et al teach a planar waveguide but do not teach using an optical fiber. Murphy et al teach an optical waveguide sensor having a grating and a reactive coating and exposing the sensing area to a sample. Murphy et al further teach that the optical waveguide is either a planar optical waveguide, an integrated optic waveguide or a fiber optic waveguide (see column 7 lines 50-53). Pauluth et al teaches using an optical waveguide for sensing region that is further coupled to an optical fiber (see Fig. 1). Thus, using an optical fiber in Pauluth et al as taught by Murphy et al would have been an obvious design choice to one having ordinary skill in the art at the time the invention was made and also using an optical fiber in the sensing region would not required coupling of the waveguide and the optical fiber thus providing improved coupling efficiency. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an optical fiber in Pauluth et al to improve coupling efficiency. Furthermore using an optical fiber in Pauluth et al as taught by Murphy et al instead of a planar waveguide would provide a fiber channel holder.

Regarding claims 5-7 and 9-13, Pauluth et al show two planar mating pieces of the substrate structure however does not teach a monolithic structure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a monolithic structure in Pauluth et al, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. Since Pauluth et al's device comprises two mating pieces; the device would inherently be interchangeable.

Regarding claims 14-24, even though Pauluth et al and Murphy et al only show one of each inlet, outlet and sample channel, it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply any number of inlet, outlet and sample channels, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art.

Regarding claims 25 and 26, a standard microtiter plate has 9mm spacing, thus having 9mm spacing between sample channels would have been obvious in Pauluth et al and Murphy et al.

Regarding claims 27-35, controlled delivery of the sample using various ways into the flow cell would have been obvious to one having ordinary skill in the art at the time the invention was made in order for the user to control the test for different applications.

Regarding claims 37-42, even though Pauluth et al and Murphy et al (Murphy et al teach using a long period grating) do not teach that the grating is a Bragg grating. Bragg gratings are one of well known type of gratings that are used in the art and. Thus

Art Unit: 2874

it would have been obvious to one having ordinary skill in the art at the time the invention was made to use any other well gratings including Bragg gratings (since applicant does not provide the criticality of having any particular grating) in Pauluth et al and Murphy et al as long as the grating detects the sample being testes.

Regarding claims 51 and 52, since Pauluth et al and Murphy et al show two mating pieces that are put together to make a flow cell, one with ordinary skill in the art would recognize having means to connect all mating pieces together in Pauluth et al and Murphy et al in order to hold the pieces together.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pauluth et al and Murphy et al as applied to claim 1 above, and further in view of Chervet (U.S. Patent 5,057,216).

Regarding claim 2, even though Pauluth et al and Murphy et al teach the claimed invention except a curved sample channel. Chervet teach a curved flow cell provides no dead volume (see column 2 lines 53-61). Thus, it would have been obvious to one having ordinary skill in the art to use a curved sample channel in Pauluth et al and Murphy et al as taught by Chervet for optimum efficiency of the sensor by having no dead volume.

Response to Arguments

7. Applicant argues that the Pauluth et al do not teach an optical fiber grating. The Examiner does not agree with this. The Pauluth et al clearly teach using a grating as shown in Fig. 7 and as stated in column 7 lines 44-67). Applicant also argues that the Pauluth et al do not teach an optical fiber channel holder and fails to recognize the need

Art Unit: 2874

to maintain alignment and consistent tension by using a glass plate to mount the optical fiber. As stated above the new ground of rejection (the Pauluth et al and Murphy et al) teaches the claimed optical fiber channel holder. Applicant argues that Pauluth et al do not teach a monolithic structure however, as described previously and above, forming in one piece an article which has formerly been formed in two pieces and putting together involves only routine skill in the art to reduce manufacturing process.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Winkler et al (U.S. Patent 6,136,269) teaches using two substrates to form a flow cell (see Fig. 6). Kaltenbach (U.S. Patent 5,917,606) teaches a flow cell (see Fig. 5). O'Keefe et al (U.S. Patent 6,694,067 B1) teach an optical waveguide sensor with either a fiber optic or waveguide.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliana K. Kang whose telephone number is (571) 272-2348. The examiner can normally be reached on Mon. & Fri. 10:00-6:00 and Tue. & Thur. 10:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2874

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JULIANA KANG
PRIMARY EXAMINER